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laration made by the importers, and is checked by the expert knowledge available in the statistical office already mentioned. For the exports, the value at the port of shipment is taken. English statistics take cognizance only of the immediate port of origin and destination, and do not record the prime origin and ultimate destination of the goods.

“And, then, too, there is another cause of divergence between the returns of any two countries. I allude to smuggling. There is known to exist a good deal of this trade on certain frontiers, and this is carried on to such an extent as to seriously falsify the customs returns.”

I may mention that in the opinion of the Chief of the British Customs House there is no reason to doubt the substantial accuracy of the English returns, nor does he think the declarations are untrustworthy. At the same time there appears to be something quite wrong in the systems, not only of England but of France and other countries, which permits of such large discrepancies as have been pointed out in this article.

F. C. CHAPPELL.

STATEMENT OF DEATH RATES.

The following letter was sent by the office of the Division of Vital Statistics of the Department of State of Michigan in reply to an inquiry from Detroit. A paragraph relating to the filing of the certificate has been omitted.

The death rates for Detroit as printed in the *Bulletin* have been worked out with great care, and you may rely on them as entirely correct on the basis of the transcripts furnished by your office. For the month of November you reported to us 265 deaths, including 21 still-births, as occurring in the city of Detroit, and the annual rate based on this number of deaths and upon the estimated population of Detroit on basis of average annual increase between the United States census of 1890 and the State census of 1894 was 12.4 per 1000. You state that the number of deaths during November was 254, exclusive of “still-births, premature births, and bodies which have died in the city which were not residents of Detroit,” and upon this number and an estimated population of 275,000 you obtain a

rate of 11.24 per 1000. It will be useful to consider the causes of this discrepancy, as the official death rates issued by the city and State authorities ought to show absolute agreement.

The difference in the death rates might arise from : (1) Difference in the number of deaths reported in the month ; (2) difference in method of computing or stating annual rate ; or (3) difference in the estimate of population.

(1) The difference in the number of deaths serving as a basis for the rates depends upon four considerations, namely : (a) Inclusion or non-inclusion of still-births ; (b) inclusion or non-inclusion of premature births ; (c) inclusion or non-inclusion of deaths of non-residents ; (d) inclusion of tardy returns coming in at the beginning of the following month, and after the transcripts have been sent from your office to Lansing.

(a) The *Bulletin* includes still-births in all statements of the death rate. This is implied by the placing of still-births as a special column in all of the tables, in connection with ages, and was explicitly stated in the September *Bulletin*, page 3. As to the propriety of including still-births in the total death rate, there may be a difference of opinion. Authorities may be found on either side. We follow at present the usage of the *Michigan Registration Reports* since 1867, a usage which is shared in by many other registration offices. The European classifications generally group still-births in a distinct class, apart from deaths. The United States census includes still-births in deaths in the general tables. I may say that Mexico and the Province of Quebec, which have recently adopted an approved European form of classification (the Bertillon system) have both placed still-births in the tabular list. While on theoretical grounds it seems to me that the establishment of a separate class for still-births is desirable, with consequent exclusion from the general death rate, unless qualified, I am not at all sure that this would be best for Michigan. It is very important that all still-births be registered, and the best way at present to secure this is to treat them in all respects like other deaths. It might be well to present two alternative statements of death rates, as we have in the *Registration Reports* for some years, giving them inclusive and exclusive of still-births.

(b) I do not think that you are justified in excluding premature births from deaths. None of the standard classifications does so.

See any English Registrar-General's report, or, for the Bertillon system, the *Tableaux Mensuels* of Paris. In the latter, as stated in the explanation of terms contained in the *Annuaire Statistique* for 1888, premature births are contained in title 139, "Congenital debility, icterus and sclerema." This is the classification recommended by the Committee on Nomenclature of the American Public Health Association at the last meeting at Philadelphia, and in the report of the committee as given in the *Journal of the American Medical Association* for November 27, 1897, special reference was made to this point.

(c) Neither do I think that you are justified in leaving out of your death rate any deaths of persons who are not residents of your city. The question here is analogous to that of the census, whether a *de facto* or a *de jure* enumeration is preferable. We must choose one or the other method, and as the law at present exists we are obliged to base our death rate on the deaths that actually occurred in a district, without regard to the possible residence of the decedents. You will see that to do otherwise would be to understate the true number of deaths, for while you could exclude deaths of non-residents from the Detroit mortality, you could not include the deaths of residents of Detroit occurring in other parts of the State or in other States or countries. It is not fair to exclude one and not to include the other, and especially such deaths as might occur of invalids removing from Detroit to the West or South, and who die and are buried there.

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(2) Our methods of computation are practically identical. For convenience we multiply the total deaths by 12.2 for 30-day months, or 11.8 for 31-day months, thus converting the monthly deaths to the basis for an annual rate, and divide by the estimated population.

(3) We differ slightly in our estimate of population. As stated in the *Bulletin* all rates are based on populations estimated by average annual increase from the censuses of 1890 and 1894. There are two principal methods of estimating population, the geometrical and the arithmetical. I have shown for Michigan that the latter is theoretically and practically preferably (the same may be demonstrated for many other States in this country), and I have therefore employed it for Michigan as a whole and for several subdivisions,

including Detroit. Now any uniform system of estimation whatever will work an occasional injustice, but probably less on the whole than the use of census populations for former years (no estimates) or purely arbitrary guesses. Any rates based on directories, school censuses, and the like, have little or no statistical standing. I do not know by what method you obtained your assumed population (275,000), but it differs but little from the population used by me as stated above, namely, 261,740. Beginning with January, our rates will be based upon an estimated population for Detroit of 269,720. These differences are probably within the reasonable limits of accuracy of estimation, and make a difference in the rates of about .5 per 1000. In all cases we state rates to the first decimal place only, as to give the second implies an accuracy which few registration offices can lay claim to. We add .1 for the second place of decimals omitted, if .05 or over.